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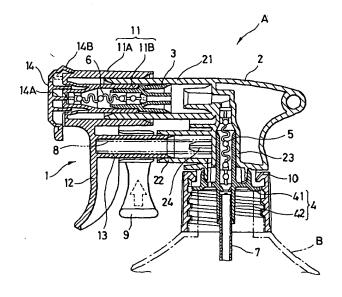
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### (54) Pump dispenser and spraying apparatus provided with the same

(57) The objective of this invention is to provide a pump dispenser (A) transmitting precisely the trigger motion and enabling stable operation of the piston section (3). As a means to achieve this objective, a manual operative pump dispenser (A) mounted on a vessel (B) wherein the liquid contained in the cylinder section (21) is compressed with the piston section (3) by the displacement of a trigger structure (1) and is ejected

through the nozzle orifice (11C), including a base body (2) fixed on the vessel orifice via a packing structure (4), a cylinder section (21) and a vent cylinder section (22) formed in adjacent to each other on the base body (2), and a trigger structure (1) including a trigger section (12), a second valve casing section (11) mounted on the base body (2), and a trigger guide section (13) oscillating in the vent cylinder section (22) is provided.

## **FIG.1(B)**





# **EUROPEAN SEARCH REPORT**

Application Number EP 02 00 0986

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|--|--|---|--|--|---|--|--|
| 31 July 1990 (1990-07-31) * the whole document *  PATENT ABSTRACTS OF JAPAN vol. 010, no. 002 (M-444), 8 January 1986 (1986-01-08) 8 JP 60 166769 A (KIYANIYON KK), 30 August 1985 (1985-08-30) * abstract *  Y US 4 958 754 A (DENNIS ET AL) 25 September 1990 (1990-09-25) A * abstract; figures 1-6 *  Y US 4 558 821 A (TADA ET AL) 17 December 1985 (1985-12-17) * column 3, lines 1-24; figures 6,10,11,14,19 *  A US 4 955 511 A (BLAKE ET AL) 11 September 1990 (1990-09-11) * column 1, lines 9-35 * * column 3, line 29 - column 4, line 44; figures 1-7 *  The present search report has been drawn up for all claims  Place of search Munich 21 March 2005 Fuchs, A  T. theory or principle underlying the invention Examiner  Funch of Search  Examiner  Funch A  Examiner  Funch A  T. theory or principle underlying the invention Examiner  Funch A  T. theory or principle underlying the invention Examiner  Funch A  T. theory or principle underlying the invention Examiner  Funch A  T. theory or principle underlying the invention Examiner  Funch A  T. theory or principle underlying the invention Examiner  Funch A  T. theory or principle underlying the invention Examiner A  T. theory or principle underlying the invention Examiner A  Examiner  Funch A  T. theory or principle underlying the invention Examiner A  Examiner  Funch A  T. theory or principle underlying the invention Examiner A  Examiner  Funch A  T. theory or principle underlying the invention Examiner A  Examiner   | Category                                 |   |  |  | Relevant<br>to claim                            | CLASSIFICATION OF THE APPLICATION (Int.CI.7) |  |
| vol. 010, no. 002 (M-444), 8 January 1986 (1986-01-08) 8 JP 60 166769 A (KIYANIYON KK), 30 August 1985 (1985-08-30) * abstract *  Y US 4 958 754 A (DENNIS ET AL) 25 September 1990 (1990-09-25) A * abstract; figures 1-6 *  Y US 4 558 821 A (TADA ET AL) 17 December 1985 (1985-12-17) * column 3, lines 1-24; figures 6,10,11,14,19 *  A US 4 955 511 A (BLAKE ET AL) 11 September 1990 (1990-09-11) * column 1, lines 9-35 * * column 3, line 29 - column 4, line 44; figures 1-7 *  The present search report has been drawn up for all claims  Place of search Munich  Date of completion of the search Munich  A US 4 955 511 A (BLAKE ET AL) 11 September 1990 (1990-09-11) * column 1, lines 9-35 * * column 3, line 29 - column 4, line 44; figures 1-7 *  The present search report has been drawn up for all claims  Place of search Munich  A US 4 955 511 A (BLAKE ET AL) 11 September 1990 (1990-09-11)  * column 1, lines 9-35 * * column 3, line 29 - column 4, line 44; figures 1-7 *  The present search report has been drawn up for all claims  Fixer interval of the search Munich  CATEGORY OF CITED DOCUMENTS  Tit theory or principle underlying the unreation, or the search report has been drawn, but published on, or  | Υ  | 31 July 1990 (1990 <sub>:</sub>   | -07-31)  |  |   |  |  |
| 25 September 1990 (1990-09-25)  * abstract; figures 1-6 *  Y US 4 558 821 A (TADA ET AL) 17 December 1985 (1985-12-17) * column 3, lines 1-24; figures 6,10,11,14,19 *  A US 4 955 511 A (BLAKE ET AL) 11 September 1990 (1990-09-11) * column 1, lines 9-35 * * column 3, line 29 - column 4, line 44; figures 1-7 *  The present search report has been drawn up for all claims  Place of search Munich  Date of completion of the search Munich  21 March 2005  Examiner  Exami | Y  | vol. 010, no. 002<br>8 January 1986 (198<br>& JP 60 166769 A (1<br>30 August 1985 (198  | (M-444),<br>36-01-08)<br>KIYANIYON KK),  |  |   |  |  |
| A * abstract; figures 1-6 *  Y US 4 558 821 A (TADA ET AL) 17 December 1985 (1985-12-17) * column 3, lines 1-24; figures 6,10,11,14,19 *  A US 4 955 511 A (BLAKE ET AL) 11 September 1990 (1990-09-11) * column 1, lines 9-35 * * column 3, line 29 - column 4, line 44; figures 1-7 *  The present search report has been drawn up for all claims  Place of search Munich  Place of search Munich  CATEGORY OF CITED DOCUMENTS  T: theory or principle underlying the invention E: earlier patent document, but published on, or   | γ  |   |  | 2,3  | ,11   |  |  |
| The present search report has been drawn up for all claims  Place of search Munich  CATEGORY OF CITED DOCUMENTS  * column 3, lines 1-24; figures 6,10,11,14,19 *  US 4 955 511 A (BLAKE ET AL) 11 September 1990 (1990-09-11) * column 1, lines 9-35 * * column 3, line 29 - column 4, line 44; figures 1-7 *  Technical Fiel SEARCHED  BO5B  Technical Fiel SEARCHED  BO5B  Examiner  T: theory or principile underlying the invention gives earlier patent document, but published on, or  | A  |   |  | 1  |   |  |  |
| The present search report has been drawn up for all claims  Place of search  Munich  CATEGORY OF CITED DOCUMENTS  * column 1, lines 9-35 *  * column 3, line 29 - column 4, line 44; figures 1-7 *  The present search report has been drawn up for all claims  Place of search Munich  CATEGORY OF CITED DOCUMENTS  T: theory or principle underlying the invention E: earlier patent document, but published on, or  | Υ  | 17 December 1985 (1<br>* column 3, lines 1  | l985-12-17)  | 5,9  |   |  |  |
| Place of search  Munich  21 March 2005  Fuchs, A  CATEGORY OF CITED DOCUMENTS  T: theory or principle underlying the invention E: earlier patent document, but published on, or  | A  | 11 September 1990<br>* column 1, lines 9<br>* column 3, line 29   | (1990-09-11)<br>9-35 *   | 1  |   |  |  |
| Place of search  Munich  21 March 2005  Fuchs, A  CATEGORY OF CITED DOCUMENTS  T: theory or principle underlying the invention E: earlier patent document, but published on, or  |  |   |  |  |   | ,  |  |
| Place of search  Munich  21 March 2005  Fuchs, A  CATEGORY OF CITED DOCUMENTS  T: theory or principle underlying the invention E: earlier patent document, but published on, or  |  | The propert energy separat has  | boon drawn up for all alaims   | _  |   |  |  |
| Munich 21 March 2005 Fuchs, A  CATEGORY OF CITED DOCUMENTS  T: theory or principle underlying the invention E: earlier patent document, but published on, or   |  | •   | ·  | <del>       </del>                                     |   | Evaminer                                     |  |
| CATEGORY OF CITED DOCUMENTS  T: theory or principle underlying the invention E: earlier patent document, but published on, or  |  |   | ,  |  | Fuc   |  |  |
| Y: particularly relevant if combined with another document of the same category A: technological background C: non-written disclosure  a technological background  | X : part<br>Y : part<br>docu<br>A : tech | ATEGORY OF CITED DOCUMENTS<br>ioularly relevant if taken alone<br>ioularly relevant if combined with and<br>unent of the same category<br>inological background | T: theory or prin E: earlier patent after the filing D: document cit L: document cit | document, i<br>date<br>ed in the app<br>ad for other r | ring the in<br>out publis<br>dication<br>easons | vention<br>hed on, or                        |  |

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#### ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 02 00 0986

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-03-2005

|    | Patent document<br>and in search report |   | Publication date           |  | Patent family<br>member(s)   | Publication<br>date  |
|----|---|---|----------------------------|--|--|--|
| US | 4944431                                 | Α | 31-07-1990                 | US   | 4955511 A  | 11-09-1  |
| JР | 60166769                                | A | 30-08-1985                 | NONE   |  |  |
| US | 4958754                                 | Α | 25-09-1990                 | CA<br>GB   | 2011207 A1<br>2232448 A ,B   | 01-09-1<br>12-12-1   |
| US | 4558821                                 | A | 17-12-1985                 | JP<br>JP<br>JP<br>JP<br>AU<br>AU<br>BR<br>CA<br>EP<br>KR<br>ZA<br>ES | 1518328 C<br>59160562 A<br>63065385 B<br>1518335 C<br>60028843 A<br>63065386 B<br>548189 B2<br>2047183 A<br>8306014 A<br>1211742 A1<br>0117898 A2<br>8602013 B1<br>8307964 A<br>275346 U | 07-09-1<br>11-09-1<br>15-12-1<br>07-09-1<br>14-02-1<br>15-12-1<br>28-11-1<br>06-09-1<br>13-11-1<br>23-09-1<br>12-09-1<br>15-11-1<br>27-06-1<br>16-04-1 |
| US | 4955511                                 |   | 11-09-1990                 | US   | 4944431 A  | 31-07-1  |
|    |   |   |                            |  |  |  |
|    |   |   | ficial Journal of the Euro |  |  |  |